

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/11137

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ G03F7/039, C07C39/17, 69/736, C07D309/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ G03F7/004-7/42, C07C39/17, 69/736, C07D309/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Kokai Jitsuyo Shinan Koho	1971-2003	Jitsuyo Shinan Toroku Koho	1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CAPLUS (STN), REGISTRY (STN)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	WO 02/079131 A1. (KRI International, Inc.), 10 October, 2002 (10.10.02), Page 70, line 21 to page 71, line 4; page 60, line 28; page 143, line 22 to page 144, line 3; page 149, lines 16 to 25 & JP 2002-363123 A	3, 4, 8-18 5-7
X A	JP 2002-229193 A (Fuji Photo Film Co., Ltd.), 14 August, 2002 (14.08.02), Par. Nos. [0002], [0079][II], [0082][XI], [0225] (Family: none)	3-18 19-21
X A	JP 2002-182392 A (Fuji Photo Film Co., Ltd.), 26 June, 2002 (26.06.02), Par. Nos. [0002], [0125][II], [0128][IX], [0172] (Family: none)	3-18 19-21

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
01 December, 2003 (01.12.03)

Date of mailing of the international search report
16 December, 2003 (16.12.03)

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0025495 A1 (Tokyo Ohka Kogyo Co., Ltd.), 28 February, 2002 (28.02.02), Par. Nos. [0053], [0070] & JP 2002-55452 A	3-18
X	EP 889367 A (Matsushita Electric Industrial Co., Ltd.), 07 January, 1999 (07.01.99), Page 11, lines 7 to 11; page 28, structural formula & JP 11-72922 A & US 6074804 A	3-18
P,X	JP 2003-137860 A (JSR Corp.), 14 May, 2003 (14.05.03), Par. Nos. [0006], [0132] (Family: none)	3-18
P,X	JP 2003-177537 A (Fuji Photo Film Co., Ltd.), 27 June, 2003 (27.06.03), Claim 1; Par. Nos. [0139][II], [0141] (Family: none)	3-18
A	JP 6-51519 A (Fuji Photo Film Co., Ltd.), 25 February, 1994 (25.02.94), Full text (Family: none)	3-21
A	JP 2001-109142 A (JSR Corp.), 20 April, 2001 (20.04.01), Full text (Family: none)	3-21

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Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 1, 2
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
The invention of claim 1 comprises a compound of the general formula (1) as substantially only one technical feature. However, the definition of the general formula (1) consists of an ambiguous central structure A; ambiguous (continued to extra sheet)
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

(See extra sheet)

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.
☒ No protest accompanied the payment of additional search fees.

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Continuation of Box No.I-2 of continuation of first sheet(1)

substituents B, C and D; and X, Y and Z connecting the substituents to the central structure through a single bond or an ether linkage. Thus, the scope of the organic compounds is unclear.

Continuation of Box No.II of continuation of first sheet(1)

Claim 1 relates to a photoresist base material consisting of an extreme ultraviolet-sensitive organic compound represented by the general formula (1) and the technical feature of claim 1 is substantially only a compound of the general formula (1).

However, the definition of the general formula (1) consists of an ambiguous central structure A; ambiguous substituents B, C and D; and X, Y and Z connecting the substituents to the central structure through a single bond or an ether linkage. Thus, the scope of the organic compounds of the general formula (1) is unclear.

Claims 1 and 2 are thus unclear and international search was therefore not carried out about the unclear claims.

Claims 3 to 21 describe the following two inventions.

Partial international search has been carried out about claims 3-18.

Claims 3 to 18 relate to a photoresist base material comprising an extreme ultraviolet sensitive organic compound having a central structure A set forth in claim 3 (wherein X, Y and Z are each an ether linkage), a photoresist composition containing the material, and matters relating to both, and

Claims 19 to 21 relate to organic compounds whose central structures are further limited to two types.

The technical feature of structure of these compounds overlaps with that of claim 3, but the technical features of both are not the same.

<Concerning the scope of international search>

The compounds of claims 19 to 21 are unclear, because X, Y and Y are not defined and because two types of compounds which are different from each other in the valency of central skeleton are defined together, so that the sum of $l + m + n$ is unclear.

Further, no compounds are concretely supported, except the two compounds, i.e., calix-[4]-resorcinarene derivative described in Example 8 which correspond to the compound of the general formula (15) wherein all Rs are each 4-(tert-butoxycarbonyloxy)benzyl, and 1,1,1-tris[4-(3',5'-di(tert-butoxycarbonyloxy)benzyloxy)phenyl]ethane described in Examples 33 and 34.

Thus, international search has been carried out on the basis of the finding that the compounds of claims 19 to 21 are limited to calix-[4]-resorcinarene derivative wherein all Rs are each 4-(tert-butoxycarbonyloxy)benzyl, and 1,1,1-tris[4-(3',5'-di(tert-butoxycarbonyloxy)benzyloxy)phenyl]ethane described in Examples 33 and 34.

Similarly, the compounds of claim 6 are also unclear. However, the use of the compounds is limited to photoresist, so that claim 6 barely complies with the prescribed requirements to such an extent that an international search can be carried out. Partial search has been carried out about claim 6.